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SCABIES.

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In the days of our fathers scabies was a disease of frequent occurrence and was the pest of the village school, but it gradually died out under more cleanly ways of living, until in our generation it has become so rare that many physicians do not recognize it even when called upon to treat it. The frequent mistakes in diagnosis which arise through this want of familiarity, the importance of the immediate recognition of its existence in a family, and its marked increase among us within a few years, lead me to ask the attention of the Society to some points connected with its nature, diagnosis and treatment, as they were observed by me in the clinic of Prof. Hebra.

Three forms of the itch insect are met with upon the skin, viz., the female, male and young. The mature female is discernible with the naked eye as a speck, $\frac{1}{4}$ line in length and $\frac{1}{2}$ line in breadth. It is of a white color, and resembles in form a tortoise shell, with an arched back and flat belly. The male is only half the size of the female, and, until recently discovered and described by Boeck and Danielsson in cases of Norway itch, was unknown. In structure it differs but slightly from the female. * * * * It is not white and shining like the female, but black and compressed. The young possess but three pairs of legs, and in them no distinction of sex is noticeable. In order to become mature they undergo, according to some writers, three metamorphoses, according to others only one. Whether all these changes are essential or not, it is at least a fact that the 6-legged form may be found containing within itself a visible 8-legged one. After maturity the females cease to creep over the surface of the skin, and remain in new burrows till sought after by the males. One coitus must suffice to impregnate the entire ovary of the female, for after copulation she burrows deeper and deeper,

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and forms the long burrows to be more particularly described hereafter. The male never enters one of these true burrows where the eggs are found, but digs himself a shallow cell or seeks new fields for his sexual rambles. The female goes on her downward course obliquely through the epidermis, and leaves behind her each day a new laid egg and masses of fecal matter. The direction taken must necessarily be oblique, for otherwise the rapid increase of the epidermis from below upwards and discharge of effete superficial layers would allow the escape of the eggs before the proper time. After 14 are thus deposited, the larva of the oldest, which has been gradually pushed up from below, becomes mature, and emerges from its birth-place through the opening made by the mother to undergo the processes above described, leaving behind its broken egg-shell. All stages of development may be witnessed in these eggs, from the amorphous form in which they are deposited, through segmentation, to the perfect young before it breaks its prison. The old female never leaves her hole, and sometimes wanders along for four inches beneath the surface. Fifty eggs and broken shells are sometimes counted in such burrows, although they never contain more than 14 larvæ at one time. If, however, a pustule should be formed the eggs are destroyed, but the female emerges at the surface near the edge of the pustule, and commences her descent anew. The whole time required for the young to reach maturity after impregnation is estimated at six weeks. How long the female may live is not known, but she probably dies at the extremity of her burrow after depositing all her eggs.

The symptoms produced by the presence of these minute animals are of two kinds—the direct or primary, those caused by the animal itself, and the indirect or secondary, those produced in consequence of the scratching. They are both subjective and objective.

The Primary.—We have already seen that the appearances on the skin must differ according to the age and sex of the parasite. The young and males make only a little pit or short burrow for purposes of metamorphosis or nutrition, and at most give rise to the formation of a minute vesicle. It is the impregnated female only which produces the characteristic pathognomonic sign of scabies, the burrow for the deposition of her eggs. These burrows, when closely observed, are found to be linear elevations, running an irregular course, with an uneven surface corresponding to the situation of the eggs within, and terminating at one extremity in a marked prominence, which is the old one at work. Bourignon considered these irregularities of surface to be caused by openings in the course of the burrow through which the female emerged at night; but, as already stated, it is known that she never leaves her hole, and microscopic examination shows the eggs lying with the long axis perpendicular to that of the tunnel, and that no such communication with the surface above exists. It reveals, also, the presence of numerous reddish

brown globular masses scattered throughout its whole length, which are the faeces of its inhabitant. In persons of cleanly habits the burrows are generally distinguishable by their white color, but in classes among which scabies most commonly occurs, they are mostly stained of a darker tint than the surrounding epidermis, from the absorption of dirt and coloring matters. In length they vary, averaging generally from one or two lines to half an inch, but in exceptional cases they may stretch out to three or four inches, although the eggs are much farther apart in such instances, as the number in each individual is probably limited to 40 or 50. The direction they take is slightly zigzag or curved, seldom perfectly straight. When fresh, a small vesicle often marks the point of entrance of the animal, and in other instances the whole burrow is lifted prominently above the surface by the exudation excited beneath it, which may be converted into a pustule and thus destroy the embryos. In rare cases a large papule may be formed beneath the burrow, over the summit of which it may be seen to run. The entrance of the tunnel generally remains open for the exit of the young and for the admission of air. When the disease has existed for a long time they may run into each other, or secondary appearances may show themselves, which obscure the typical forms and present to an inexperienced eye no sign of scabies.

As to the *subjective* symptoms produced by these minute creatures, the plain Saxon name of the disease indicates strongly enough their nature. It is the *itch*. The sensation experienced by the patient is produced in a degree only by the old female. It is the depredations of the young and males, rambling at will over the surface of the body and boring at random into the deeper and sensitive layers of the epidermis, or into the upper surface of the papillary structure, which produce an itching so intolerable as to make a resort to scratching an imperative necessity. The scratching, when once excited, however, is not confined to the local irritation of the affected spot alone, but, owing to the intimate connection existing between the sensitive cutaneous nerves and the pleasurable sensations thus produced, is converted into a general application of the nails to large surfaces of the surrounding skin.

This itching, which is a primary and subjective symptom, leads us from cause to effect, to the *secondary* phenomena of the disease—the eruptive appearances of scabies. It is only necessary to assume that scratching is capable of producing upon a person harboring a colony of sarcoptes the same appearances as upon the skin of any body else, and we may account for all the objective symptoms of this affection, with the exception of the burrows already described, without being obliged to consider the possibility of any such absurdities as a psora dyscrasy or the absorption of the irritating fecal matter of the insect. Let any one scratch himself roughly on the breast or thigh and study the result. We first see broad red lines correspond-

ing to the irritated parts; this is erythema. The follicles then begin to swell up in consequence of the exudation, or, in other words, a papular eruption appears. Carry on the scratching farther, and we cause an excoriation and hæmorrhage, by which the tip of each papule is colored black by the dried blood, as in prurigo. Again, if we scratch or interfere with the process of an exudation, what is the result? a pustule appears. It is incorrect, then, to say that such and such forms of eruption are caused by this animal. It has nothing to do with them, except to cause an itching, from which they all result. The eczema and vesicles, papules and pustules are wholly caused by our nails and our clothes, and not by the parasite. In individuals who cannot scratch, no such forms are met with. In the beginning of the disease the itching is very slight, but after a fortnight has passed, and the young are beginning to emerge and colonize fresh portions of the skin, it increases in intensity, and leads to more frequent indulgences in scratching, in consequence of which red spots or papules appear about the openings of the hair follicles. By the third week the itching has become so intense as to be no longer satisfied by superficial friction, and excoriation and a pruriginous eruption, tipped with bloody caps, bear witness to the execution effected by the nails. Finally vesicles, pustules, patches of eczema rubrum, and ecthyma, and depositions of pigment follow, and in some cases the extremities may be covered with crusts of the size of a copper cent, and with pigment spots, the seats of old scabs, which might be mistaken for syphilis. The eczema and pustules are at times sufficient to cause the neighboring lymph-glands to swell. These appearances are confined to certain regions of the body, as the chest, abdomen, thighs and hands, not the parts where the burrows are in the greatest abundance, nor are they in proportion to their number, but those which are most easily accessible to the nails. Upon the neck, back, shoulders and lower extremities very little eruption is found. Wherever constant pressure is made, there the appearances will be exaggerated. Those who sit all day, as shoemakers, tailors, and others, have the pustules and papules most developed on the buttocks, just as occurs in the axillæ of those who walk with crutches, and about the waist and under the garters of women. The appearances which the surface of the body presents in those who have had the itch a long time are most variable, and even long after the cause has disappeared, we may find an eruption which would serve as a model to illustrate almost every form of cutaneous disease.

A peculiar variety of scabies is met with in Norway, which is distinguished by the formation of huge crusts upon the surface of the skin like rupia, and by the presence of the parasites upon the face and even beneath the nails. Its frequent occurrence in that country and its rarity in other places, only some half dozen cases having been observed elsewhere, has led to the supposition that the disease was caused by some peculiar form of acarus, but Hebra has shown

that the crusts consist of dried epithelium, dead sarcoptes and their faeces, and that beneath the whole epidermis is undermined by swarms of animals, adults of both sexes and young, living without burrows, which are identical with the ordinary variety. It was in such social colonies that the male was first discovered and described. This form leads often to serious complications, as immobility and great swelling of the limbs, as in elephantiasis, with severe pain and inflammation, and is at times confined to a circumscribed part of the body, while the rest of the surface is affected in the usual way. We seek in vain for a satisfactory explanation of this form of the disease. Hebra thinks that great uncleanness and indifference may be the cause, but the fact that it often affects parts usually exempt, is opposed to such an opinion. Küchenmeister thinks that some epidemic influence or constitutional peculiarity alone can explain the greatly exaggerated exudative process. It yields as readily to treatment as the ordinary forms.

Diagnosis.—We see, therefore, that scabies presents a varied combination of appearances capable of misleading any one who does not carefully analyze them. We must always bear in mind the importance of recognizing the primary phenomena of the disease, which furnish positive evidence in any particular case. We cannot, therefore, make ourselves too familiar with all that pertains to the habits of the sarcoptes and its marks upon the skin, and even at the risk of repetition we shall explain the means to be employed in our examination. As has been remarked, the favorite spots for the burrows are the commissures and lateral surfaces of the fingers, the hands, penis, nates, feet, and folds of the axillæ, and in women the breasts, while in children we may find them equally distributed over the whole surface of the body. They may affect any part of it, in fact, except the head, although Hebra has cultivated them upon the face and scalp. It is the hand of the patient we first take up to examine, if we suspect the presence of scabies, for the collection of foreign matter, with which they continually come in contact, colors the burrows of a dark tint. If, therefore, we see streaks or spots which resemble such a burrow, we have only to rub it with some dark coloring matter, as ink, and then endeavor to wash it off, and if we really have to do with scabies we shall find that the pigment has penetrated beneath the epidermis and cannot be removed. If we fail to find the burrows on the hands, for owing to some occupations these are at times an unpleasant dwelling place for the sarcoptes, we should examine the penis, where, from the yielding nature of the tissues and the undisturbed quiet, we find the most perfect specimens of animals, eggs and burrows, or, in a person of sedentary habits, the buttocks. The specimen exhibited to the Society was snipped from the glans with a fine curved scissors by Prof. Hebra. This may be done without much pain to the patient, for it is not necessary to go deeply to cut out the whole burrow and animal intact.

In persons who suffer from cold hands and feet we often find these parts entirely free, while the rest of the body may be covered with the eruption. This is corroborative of their love of heat, and when a person lies habitually on one side in bed, we sometimes find that side of the face affected, while that exposed to the cold remains untouched. Another exemplification of the same law may be seen in the immediate relief which a patient, wrought almost to frenzy by the itching of a general scabies at night, finds by jumping out of bed into the cold atmosphere of winter. The animal is best obtained from its burrow in the way above mentioned, or we may open the elevated track with a sharp knife or needle, and find it at its extremity. The males may be found with a lens upon the surface of the body, near the burrows of the females or slightly embedded in the skin, appearing as a dark point. The young are generally found in fresh vesicles or in the epidermis undergoing their metamorphoses. We may often detect the lurking place by rubbing the suspected spots with German soap, and in twenty-four hours an exudation will follow and elevate the burrow. In this way we may often settle doubtful cases. By transporting a colony to one's arm the customs of the animal may be easily observed with a lens, and we see that they seldom or never go below the epidermis. In order to enter this, the acarus supports himself on his anterior end by means of its long posterior bristles, and works away with his lobster-like claws. It usually takes one fourth or one half an hour to penetrate the outer integument, but this once pierced its progress is more rapid. When coming in contact with the nerve papillæ it causes a stinging sensation. The poorer in nutriment the epidermis, the deeper it penetrates and the greater the exudation caused, which lifts up the animal and gives the white color to the hole. The young brood seems to require the tender and last-formed epidermal layers for its food, and therefore bores deeper and produces more itching and exudation. When wandering about on the surface they produce no exudation whatever, but on the genitals and upon infants, where the epidermis is very thin, they are obliged to go deeper, whence the large exudation which ensues in such cases. It is a commonly received opinion that the parasite is to be found either within a vesicle or, as it is said, a little way from it, without any apparent reference to the existence and importance of the burrow. In the majority of cases the vesicles have no connection with the position of the animal, and in the exceptional cases contain only the young, or are situated at one extreme end of this canal, while the game hunted is at the other. Wilson has added to this confusion by giving, as one of the important diagnostic signs of scabies, "a peculiar scaliness and undermined state of the epidermis," from beneath which the animal may be extracted. This scaliness we have never observed, but we should literally as soon think of looking for a needle in a haystack as to attempt to extract an acarus until we had found a bur-

row, and a fresh one. In case none such can be found, we may still hope to obtain the proof we seek in the dried eggshells and faecal masses the old burrows contain; or if this opportunity even is wanting, we may perhaps be fortunate enough to chance upon a vesicle which contains the young or a portion of its cast skin. Neither can we understand why it is that this writer should make the extraordinary statement that "one of the most remarkable phenomena of scabies is the localization of the acarus to the hands, while the eruption excited by it may be spread more or less extensively over the entire body." This is quite as incorrect as many of his statements with regard to vegetable parasitic affections. It is true that among the favorite lurking places of the animals are the folds of the skin between the fingers, for there they find the conditions of warmth and moisture they prefer; but, as we have seen, they affect as well the penis, folds of the axillæ and nates, and were we in search of a specimen we should turn first to these latter regions, where the burrows are less interfered with. Cases occur, however, and not unfrequently, where from the peculiar situation of the disease, or from interference either by the patient or by treatment, all immediate signs of the presence of the animals are wanting, where no burrow, fresh or dried, and not even a vesicle is to be found. Are we, in fact, able to recognize scabies by any peculiarities in the gross or secondary appearances? In the great majority of cases we are. We should examine carefully the whole body, notice the locality and character of the eruption, the appearances about the hands and feet, upon the penis and upon the nates, and if we have once thoroughly studied and understood the little peculiarities which give individuality to the multiple appearances of the disease, we shall readily recognize its nature, even when complicated by the simultaneous occurrence of an eczema or other cutaneous affection. We strongly insist upon the necessity of a careful attention to all these points, so important in diagnosis, on account of the great number of cases in which no other signs are present, and the frequency with which mistakes occur in consequence. We have repeatedly seen cases of well-marked scabies treated for a long time as some other disease, in which typical burrows were staring the physician in the face all the while, and again others which were equally unmistakable on close examination, though not so striking, called lichen or prurigo, when the microscope revealed the presence of the parasite. There is, in fact, an indescribable expression in the features of a case of scabies which can hardly be mistaken by any one who has once had the opportunity of seeing a large number of patients known to be affected with this disease. In cases of very long standing, or when confined to the hands, all specific appearances may be merged in those of chronic eczema, so that we may only suspect, not feel entirely sure in our diagnosis. In such cases we should always adapt our treatment to our suspicions,

and at least remove all doubts with regard to the future character of the eruption by the application at once of our parasiticide.

Etiology.—Scabies is found all over the world, but who had the first sarcoptes is a question not easily answered. It may have originated by transference from some other animal, for the same species is found parasitic on camels, lions and other animals in menageries, although it may have been man who affected the brute in such instances. We know that the mange of domestic animals, as the horse, pig, dog and cat, is capable of producing upon the skin of their keepers appearances similar to those of true scabies, but these are never of long duration, and yield much more readily to treatment than those produced by the sarcoptes hominis. We never see here in these days such cases of scabies as are met with in a European hospital. In Germany the old system of apprenticeship and its attendant wanderings through the land is still kept up, and in this way the disease is borne from one part of the country to another. Master workmen have generally but one bed for four apprentices, and the linen is seldom if ever changed. Scabies until recently has been comparatively rare here, although it has sometimes run through a school or orphan asylum, or found its way into a good family, the young lady members of which often bear it about for a long time before suspecting its true nature. Of late years it has been quite largely introduced into the country by the crowds of immigrants which pour into our large cities. Every ship that arrives with such a freight brings scores of fresh cases of the disease, which spreads rapidly during the voyage, owing to the close quarters and want of cleanliness, and which serve as so many new centres of contagion wherever their inmates settle. The child carries it to the school and gives it to its playmates, and the older girl communicates it to the children or fellow servants at the place she takes. We have recently known an instance where it was started in this way in a small manufacturing town but a few miles from Boston, and was introduced into a large number of families before its real nature was understood. Returned soldiers bring it frequently with them from camp, and leave it behind as a constant reminder of their furlough. The mode of infection consists in the transfer of individuals from one host to another. This is accomplished in the majority of cases, without doubt, by the young and males, for, as we have seen, the mature female never leaves her hole. The acarus is an animal which loves the warmth, and on this account has been called nocturnal, but without good reason. The wandering and activity are excited only by the warmth imparted to the body by lying in bed, by sleeping with others, and by dancing, when hands are freely interchanged, and thus it is that the parasites are conveyed from one person to another. The nurse gives it to the child by placing her hand beneath its little nates, and so bearing it about. It may also be conveyed by

wearing the clothes of any body afflicted with it, for both eggs and insects possess an obstinate vitality, and may exist months without food. It may happen occasionally that the old animal is scratched from its hole and thus transferred to another part of the same host or to a bed-fellow. We see, therefore, why it is that in some cases a person exposed to the disease may not exhibit any other symptoms than a solitary unnoticed burrow for weeks, until the young begin to make their appearance upon the surface, whereas in other cases the transference of the affection may be accomplished by several young or males, which begin their provoking rambles at once and cause an immediate eruption. It is this circumstance, principally, which determines the so-called period of incubation, and not, as Mr. Wilson says, the particular temperament, climate, season, age, confined air, &c. Scabies is seldom, if ever, caught by handling patients, however freely this may be done, and physicians and nurses are seldom infected. In one instance only, and that on an intensely hot day, did I ever see infection follow thousands of such contacts between patient and student. There must be many cases, however, where such transfer takes place without any result, for should several males or an unimpregnated female alone be conveyed to a fresh skin no general scabies would follow.

Treatment.—The chief indication in the treatment of scabies is of course to destroy the insect and its eggs, if possible. Any means which will accomplish this without injury to the skin and in the shortest time, is of course the best. The use of internal remedies belongs to the days when a belief in a dyscrasy prevailed, and nothing need be said about it. It will be needless to mention all the numerous remedies which have been used at various times and among different nations. Nearly everything has had a trial, but the remedy to kill the eggs as well as the insects is yet to be discovered. Among them all, one substance has attained a reputation which has made its use universal. Sulphur in some form, as a gas, as an acid, as a salt, in form of bath, or ointment, or tincture, either alone or mixed with other substances, is employed all the world over. There is, however, a great difference in the effect of the various preparations both upon the patient and upon the disease; and a knowledge of these effects is essential to a proper selection. Sulphur baths once employed, required weeks to produce any permanent effect, and were extremely disagreeable. Still less can be said in favor of the sulphur vapor bath, which, when used of sufficient strength to produce the desired results upon the parasite, usually causes so extensive an eczema as to require weeks of after-treatment for its removal. Simple sulphur mixed with fat (sulphur ointment) rubbed thoroughly into the skin, will in time cure the disease, but the process is a long one, and, when pushed to the extent to which the English use it, seldom fails of causing an artificial eczema. A more rational plan is to add to the preparation some substance which will more

speedily remove the outer layers of epidermis, and allow the sulphur to come in direct contact with the animal. Such a substance is an alkali, and this combination in some form is at the base of all the various remedies and cures of the day. Among these, perhaps, Helmerich's ointment is the best, and it is this preparation modified which is employed by Hardy in his quick cure at San Louis Hospital. The original formula is:—Sulph. flor., \mathfrak{z} ij.; pot. subcarb., \mathfrak{z} i.; adipis. \mathfrak{z} viij. Hardy uses lard, 300 parts; sulphur, 50 parts; and subcarbonate of potash, 25 parts; and his whole treatment lasts but an hour and a half. For the first half hour the patient is rubbed from head to heel with soft soap; during the second he is kept in a warm bath, and the third period is devoted to a universal friction with the above ointment. Bazin uses Helmerich's ointment unchanged, but employs two frictions instead of one. The patients are immediately dismissed, and are not again seen. In the majority of cases the quick cure is sufficient to overcome the specific character of the affection, but it by no means cures the other appearances which form so important a part of scabies, and relapses will frequently occur, for it is not so easy to remove every egg at once. Three or four days is a much safer period to keep the patient under observation and treatment.

Another improvement suggested itself to Wilkinson, in the addition of some substance to prevent and heal the eczema caused by the use of sulphur in the above preparation, and some gritty matter to render the friction more effectual, and he accordingly added tar and chalk, in the following formula:—sulph. venal., ol. fagi, sapon. domest., adipis, aa libram; cretæ, \mathfrak{z} iv.; ammon. hydrosulph., \mathfrak{z} ij. This ointment was modified by Hebra by the omission of the last ingredient as useless, and by a diminution in the quantity of sulphur to lessen the tendency to eczema, and for a long time he treated most successfully the great number of patients under his charge with the following preparation—sulph. venal., ol. fagi, aa \mathfrak{z} vi.; sapon. viridis, adipis, aa libram; cretæ, \mathfrak{z} iv. M. In cases where fat could not be employed, a more cleanly tincture was made by substituting alcohol to the same amount for the lard in the above formula. The action of this combination of remedies may be thus explained. The alkaline soap, assisted by the mechanical action of the chalk, removes the external layers of epidermis and opens the burrows, the sulphur acts as a parasiticide upon the animal, and the tar prevents the eczema, while the alcohol carries into the parts most deeply affected these active principles. The method pursued by Prof. Hebra until quite recently was as follows:—The patient is put into a warm bath, where he remains for half an hour. Then a piece of coarse blanket is smeared with sapon viridis, and with it every finger and portion of surface must be thoroughly rubbed. This is to be washed off in the bath and the skin to be dried. Then the ointment or tincture is thoroughly applied to the whole body, or in slight cases to the parts

affected only, and the patient is carried to a warm chamber, where he remains until the next day, when the same process is repeated, and this treatment is pursued until itching no longer exists. Three baths are all that are allowed, unless many pustules are present, when more will be beneficial. The patient can be treated in this way at evening and continue at his work by day. In mild cases and tender skins, the modern sulphur soaps will be found of benefit, or we may use for ladies the following preparation introduced by Bourignon:—*Ol. lavend.*, *ol. menthæ*, *ol. carophyl.*, *ol. cinnam.*, aa \mathfrak{z} i.; *gummi tragacanth*, \mathfrak{z} i.; *potas. carb.*, \mathfrak{z} i.; *lac. sulph.*, \mathfrak{z} iij.; *glycerine*, \mathfrak{z} vi. M. Within a few years, however, Prof. Hebra has employed the Vlemineckx solution entirely in the treatment of this disease. This method was introduced by the Surgeon-General of the Belgian Army, and its effect was found to be so satisfactory as to lead to its trial with the most eminent success in other cutaneous diseases. The formula for its preparation is as follows:—*Sulph. flor.*, \mathfrak{z} ij.; *calcis vivæ*, \mathfrak{z} i.; *aquæ*, \mathfrak{z} xx. Boil till \mathfrak{z} xii. remain, and filter. We obtain in this way a clear orange-colored liquid, the expense of which is but very little. We get, accordingly, the necessary alkaline action, combined with the sulphur in a penetrating form, and the result is all that could be desired. The only objections to its use are its irritating effect and unpleasant odor, but the necessity for its use is limited to so short a period that they amount to little. It is applied in the following manner. The patient must rub his whole body thoroughly at night with a flannel cloth wet with the solution for half an hour. He then takes a warm bath of an hour's duration, during which the sulphur is washed from the skin, and subsequently a cool sponge bath of pure water. An application of some fatty substance or of a thin solution of oil of cade may then be used if necessary.

One or two repetitions of this process will be sufficient to cure the most severe cases of scabies. We have employed this method of treatment repeatedly, and have never known the itching to fail to disappear almost entirely after the first application; but should it return at any spot, subsequent treatment may be confined to this locality.

Whichever of these three most deserving methods—that of the Helmerich's salve, of the Wilkinsonian ointment or tincture, or of the Vlemineckx solution—we choose to employ, we must remember that there remains to be treated the secondary eruption, after the parasitic element has been eradicated. In mild cases it will disappear of itself, but in the severer and long standing forms it is necessary to apply the same principles of treatment which were mentioned in connection with eczema. We must also bear in mind the fact that a continuance of the specific treatment, after it has fulfilled its object, may of itself provoke appearances which the physician only creates while endeavoring to cure. The after treatment of scabies

consists of an avoidance of all past sources of contagion and of baking in an oven the clothes previously worn.

RUPTURE OF THE CRYSTALLINE LENS BY A BLOW.

[Communicated for the Boston Medical and Surgical Journal.]

MESSRS. EDITORS,—The following case presents features that may be of some interest.

J. H., aged 73 years, applied to me for an opinion respecting his eyes. He stated that, six months prior to his calling on me, a stick of wood which he was splitting flew up and struck his left eye. He suffered very great pain from the blow, and sent for his family physician. After treating him for a time, his physician turned the case over to another gentleman regarded as having more experience in diseases of the eye. When, finally, his attendant had pronounced the eye recovered from inflammatory action, the old man was dejected, since no useful vision remained. He was told that a cataract existed in the right eye, and that one was forming in the left. He was advised to wait a *year or two*, and then have an operation performed. A year or two, at his age, appeared to him to be an unwarranted assumption.

On examination, I found a cataract in the right eye, which, the patient said, had been blind a good many years, but *quantitative* perception of light was good. With the left eye he had indistinct vision of objects, and, on examining this with the ophthalmoscope, I found that the crystalline lens was missing. Presuming that dislocation of the lens had occurred, I endeavored to discover that body by placing his head in various positions, but I was unsuccessful. Synchysis of the vitreous also plainly existed.

I kept the case under observation for a few weeks, until I was satisfied that no morbid action was going on, when I extracted the cataract from the right eye. I made a superior section. Recovery was prompt and uninterrupted, and in two weeks I fitted him with spectacles. Both eyes are now in excellent condition, and he reads the newspaper with ease. Doubtless the violent blow had not only dislocated the lens, but had also ruptured the capsule and resulted in a solution of its contents.

C. A. ROBERTSON, M.D.

Albany, N. Y., December, 1864.

ON THE DISTAL COMMUNICATION OF BLOODVESSELS WITH THE LYMPHATICS; AND ON A DIAPLASMATIC SYSTEM OF VESSELS.

BY THOMAS ALBERT CARTER, M.D., M.R.C.P.

In this paper the author has recorded the results at which he has arrived concerning the distal intercommunication of the hæmal with the lymphatic system by means of injections thrown into bloodves-

sels; he also describes certain minute vessels and networks of vessels which can be shown by the same means to exist in certain mucous membranes and elsewhere. These he has named diaplasmatics.

The author's attention was first particularly called to the relation which the lymphatics bear to the bloodvessels, by observing that when the latter are fully distended with a very penetrating injection, such injection often finds its way into the lymphatics without the occurrence of ordinary extravasation.

He has thus injected the livers of three human beings and of three pigs from the portal and hepatic vessels, the former (vessels) being filled with Turnbull's blue precipitated in gelatine, and the latter with carmine similarly treated; and in each instance he has found that the injection had gained entrance to the superficial lymphatics.

In sections taken from the surface of the pig's liver, these vessels (which may readily be distinguished from the bloodvessels by their knotted irregular appearance and rapid increase and diminution in size) are observed in many instances to surround a lobule, throwing out loops and prolongations towards its centre. A certain number of these prolongations, both in the human liver and in the pig's, when traced are seen to diminish in size so much as to be considerably less in diameter than the capillaries of the organ, in which they appear to lose themselves or rather originate. Their commencements in this part, it is acknowledged, are extremely difficult to determine by simple inspection, on account of the underlying capillaries being filled with injection of the same color; but in some instances (as, e. g., where the pigment in the capillaries has faded) the author believes that he has seen the actual anastomoses of the two sets of vessels. The circumstance, however, which renders exact microscopic observation so very difficult, is the one which affords the best evidence of the communication of the two systems, viz., that the minutest lymphatics are almost invariably filled with injection of the particular tint seen in the capillaries in close relation to them. Thus if the capillaries be red or blue, or any of the intermediate shades of purple, the smallest lymphatics in the immediate neighborhood will be of a precisely similar color; which would appear distinctly to show whence the lymphatics derive their supply of fluid.

A human thyroid body which the author injected with carmine and gelatine from the bloodvessels, also exhibited a phenomenon similar to that observed in the organs just mentioned.

Sections taken from this gland and examined with the $\frac{1}{4}$ -inch objective, showed that from the capillaries are given off fine processes which break up into a network among the cell-elements of the vesicles, and, furthermore, that this network is in communication with the lymphatics which lie in the intervacular parts of the gland. In addition to this, however, there are communications between the capillaries and lymphatics in the stroma itself.

The processes which emerge from the capillaries in the stroma of

the thyroid as well as in the fibrous tissues of other parts, such as the membrana nictitans of the cat, bear a very strong resemblance to connective-tissue corpuscles; and such the author considers them to be in these parts. But as these tubular processes can be shown by injection to form a plexus in the retina (cat), to be connected with the nuclei of the capillaries, the corpuscles of bone (perch and mouse), and the fusiform bodies found among the fibrillæ of muscle (frog), as well as with the cells of connective tissue and its modifications, it has appeared that the whole of these structures belong to one system of vessels. This system the author has named, provisionally at least, "*Diaplasmatic*," because, on account of the extreme minuteness of its channels, it can only allow of the passage of the liquor sanguinis.

To designate the whole of these minute vessels lymphatics would, he considers, at the present time be somewhat premature, because those of muscular fibre and of bones, and others which will be mentioned immediately, have not been observed to join recognizable lymphatic trunks; and, moreover, it would seem by no means improbable that some of them may both commence and terminate in the bloodvessels, thus constituting what might be styled an intercapillary plexus; or they may even have a triple connection, viz., with the arterial capillaries, the lymphatics, and with the venous capillaries or the veins.

The position in which the diaplasmatic network may be most readily demonstrated, both with and without injection, is in the mucous membrane of the palate of the frog or toad. In this part, when the viscid mucus and the ciliated epithelium have been removed, there may be seen with the $\frac{1}{4}$ -inch objective, a very minute granular nucleated network, in each mesh of which is placed a globular nucleated cell. The membrane consists, therefore, of three layers—of a superficial ciliated layer, next of a granular nucleated plasmatic network, and lower still, of a basement layer of globular nucleated cells. The processes of the middle granular plexus extend not only in the horizontal direction, but also upwards between the ciliated cells, and downwards between those of the basement layer, where they become continuous with the bloodvessels lying in the fibrous tissue beneath. This connection with the bloodvessels, the author says, he has been able to make out by means of injection in the palate and œsophagus of the frog and toad, as well as in the mucous membrane of the eyelid of the latter animal. He has also demonstrated by injection that a network similar to the one just described is present in the web-membrane of the pectoral fin of the perch. The lung of the toad also exhibits a modification of the plasmatic network in the form of extremely fine hollow processes, which either stretch completely across the mesh from capillary to capillary, or terminate in finely pointed or blunt extremities among the epithelia or nuclei which stud the membrane of the air-vesicle.

In the proper epithelial portion of the skin of batrachians or of mammals, the author has not yet been able to prove distinctly that the plexuses are to be found, but he has been so far successful in this direction as to have displayed them satisfactorily in the follicles and bulbs of the whisker hairs of the mole, mouse, and kitten. From certain observations, however, which cannot here be detailed, he thinks it more than probable, not only that plasma-networks are present in the epithelial layer of the batrachian skin, but also in a corresponding part of the human cutis.

With regard to the offices performed by these networks, the author thinks it probable that all those found in the epidermal or mucous tissues are intimately connected with the function of secretion, and in a minor degree also perhaps with that of absorption; while those situated in the deeper parts of the organism, such as muscle and fibrous tissue, are employed in conveying blood-plasma to, and effete matters from, the tissues through which they pass or with which they may be in contact.—*Proceedings of the Royal Society.*

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON: THURSDAY, DECEMBER 29, 1864.

ITINERANT LECTURERS ON ANATOMY AND PHYSIOLOGY.—It is one of the unfortunate results of the general thirst for knowledge that the community is always at the mercy of the class designated above. Almost all other branches of human study can be studied quite satisfactorily with the means and appliances at command in our various educational institutions. But let one of these vagrants claim the popular ear, and at once crowds flock to hear him, eager to drink in the mysteries which his pretentious exhibition of papier maché caricatures of the human organism, and his unblushing promises to remove the veil which preserves the decencies of society, lead them to expect the revelation of. Boston has recently suffered from the infliction which such a visitation brings, and it is truly painful to reflect with how much pecuniary success to himself such a violator of the proprieties of a refined community was rewarded. We must confess it was a matter of some surprise to us that he was suffered to flaunt his indecent advertisements in the very face of the public without any interdiction from the police. The offer to exhibit the poor, mummified remains of a frail daughter of humanity, who had once been a great Paris beauty, and of a perfect model, of the most life-like reality, of a most exquisite female form, to the prurient gaze of the curious, was suffered to stand unrebuked for many days in one of our most thronged public thoroughfares. And we could not but feel that the contamination of that man's influence on the minds of our youth during his brief stay, judging by his programmes, at least, was strong enough to destroy in them the power of many a precept of morality and purity.

Most artfully do these pretenders play their game. Gifted, it may

be, with some readiness of speech, undoubtedly with immeasurable assurance, the sacredness of the subject which they handle conceals from very many innocent people the real object that they have in view. As the devil can quote scripture successfully to serve his own ends, so do these servants of his make easy dupes of silly women and weak-minded men. Generally their plan is to get some unsophisticated clergyman to lend them the weight of his influence. Laudatory resolutions of thanks, urgent requests, enforced by a vote of the audience (so artfully prepared that the hand of the secret wire-puller does not appear), call for a repetition of what has already been said once too often, and so fresh fuel is heaped on the fire of public excitement. In the mean time, in the intervals between the public exhibitions, what can more profitably or benevolently occupy the leisure of the gifted apostle of truth than to lighten the burdens of the medical profession here by offering to administer to the poor sufferers from bodily infirmities at his own apartments; not without due consideration, of course. Such is the oft-repeated game. And what wonder that the author of the daily oracular paragraphs in the newspapers, the inspired orator who is compelled by the popular voice to reiterate his public harangues, should find his private receptions only less thronged than his more capacious hall of audience? An illustration of the pretensions of the last itinerant of the kind we are speaking of has just come to our notice.

A young man, with manifest symptoms of phthisis, established by the repeated examinations of several physicians amongst us most competent to form the diagnosis, whose limited circumstances compelled him to be the beneficiary of one of our public charities, was induced by the urgent solicitation of a credulous relative to submit himself to his examination and treatment. Of course a liberal fee was demanded and paid; albeit his former medical adviser was never a cent better for the numerous interviews in which he had willingly given him the benefit of his professional knowledge. As might have been expected, the oracle at once pronounced the opinions of his physicians erroneous. He required the patient to breathe three full inspirations with the mouth closed. He then asked if he felt pain. Being answered in the negative, he told him that if he had had consumption he could not have done that without pain. Then applying his ear cursorily outside of his waistcoat and manipulating his chest a little, he declared his disease to be "*dyspepsia of the stomach!*" The patient being not quite willing to acquiesce in so complete a contradiction of the opinions of the physicians he had consulted, expressed some doubt of the accuracy of this opinion, and modestly intimated that he thought they could not have made so great a mistake. Why, said the inspired lecturer, "there is not one physician in a hundred who can tell you what is the matter with you," and reiterated his astute diagnosis. Such are the men who fill the editorial columns of our daily journals with puffs, whose advertisements disgust the decent reader, who are the pets of thousands of soft-headed dupes, and who, during their short stay, contrive to line their pockets with such earnings as years of patient labor can hardly command for the honest and reliable practitioner. When will the community learn wisdom in these things? Surely this is a sore evil under the sun.

MASSACHUSETTS MEDICAL BENEVOLENT SOCIETY.—We omitted to notice the annual meeting of this Society, which took place Oct. 27th. The following officers were elected for the ensuing year :—*President*, Dr. A. A. Gould. *Vice President*, Dr. H. W. Williams. *Treasurer*, Dr. F. Minot. *Secretary*, Dr. A. D. Sinclair. *Trustees*, Drs. S. L. Abbot, J. B. Forsyth, J. P. Reynolds, L. Parks, Jr., W. W. Wellington, S. Salisbury, W. B. Morris, C. E. Ware, C. G. Putnam.

The Treasurer stated that the balance in his hands at the close of the financial year was \$1279.22, and the funds of the Society amounted to \$3589.92, which is invested in United States Securities or in Savings Banks. The number of members is about 90.

It may not be known to some of our readers that the object of this Society is to afford relief to destitute physicians and their families. Few practitioners are able to lay up anything from their hard-earned income ; the great majority are barely able to live, and in the event of their death in middle life must leave their families unprovided for. Others are compelled by sickness to become burdens upon their friends or the community. A very moderate annual payment (two dollars) enables members of the Society to claim relief when their circumstances require it. The payment of twenty-five dollars constitutes life-membership, and the donation of fifty dollars, or more, at one time, entitles the donor to be inscribed among the Benefactors of the Society.

Owing to the political excitements of the past few years the Society is comparatively little known. We commend it to the attention of those of our brethren who are not already members, and of the benevolent generally, trusting that both the number of its members and the amount of its funds will be speedily augmented.

DARTMOUTH MEDICAL COLLEGE, HANOVER, N. H.—The annual commencement at this institution took place Oct. 28th, 1864. The annual address was delivered by Dr. J. P. Bancroft, Superintendent of the New Hampshire Asylum for the Insane, one of the delegates from the New Hampshire Medical Society. The following are the names of the graduates, with their residences and the subjects of their theses :—

James F. Brown, Candia, General Dropsy.
 Edward R. Baxter, Sharon, Vt., Cystitis.
 Hanson C. Canney, Banstead, Vaccination.
 Albert A. Chase, Meredith, Scrofula.
 John R. Cogswell, Brownington, Vt., Delirium Tremens.
 Thomas B. Dearborn, A.B., Augusta, Illinois, Phthisis Pulmonalis.
 Edward J. O'Donnell, Mason, Enteric or Typhoid Fever.
 Moses C. Eaton, Wentworth, Typhoid Fever.
 John M. Fitz, Warner, Malaria.
 Charles Hayes, Berwick, Me., Intermittent Fever.
 Victory Hobbs, North Hampton, Rubeola.
 George F. Hubbard, Claremont, Burns and Scalds.
 Simeon Hunt, A.B., Rehoboth, Mass., Inogenesis.
 Luther F. Parker, Peacham, Vt., Diphtheria.
 Abel P. Richardson, Paper Mill Village, Dyspepsia.
 William S. Robbins, Norridgewock, Me., Hæmaturia.

John F. Saville, Quincy, Mass., Yellow Fever.

Phineas H. Wheeler, Banstead, Acute Rheumatism.

OLD AGE.—There are few subjects on which the common impressions of men are more at fault than in respect to the proportion of our New England population which lives to old age. Ask the first man you meet, provided he be one who has never had occasion to examine the matter definitely and carefully, how many of our New England people (i. e., one in how many) live to be seventy years old; and very likely he will answer you, "not one in a hundred," or "not one in fifty." Death is a very common circumstance in this world, and so many die in infancy and childhood, that it comes to be regarded as something quite uncommon for a person to live to old age. Our Massachusetts statistics show that more than one in five of our native-born population live out their "three-score years and ten." If any one doubts this statement, the facts to confirm it are abundantly set forth in our annual State registration reports.

But we wish for a moment to turn the attention of the reader to some considerations, which will help him to the truth, without recurrence to tables of life statistics. Let him go back to the families which he himself has known—if he be an old man, to those that started in life with him; or, if he be a young man, to those who were the contemporaries of his father and mother—and if he finds a family in which there were ten children, see if two of them at least did not live to be seventy years old. He may, it is true, hit upon a family where, through the prevalence of consumption, or some other form of hereditary disease, or through some strange combination of outward circumstances, all the children have died young. But the compensation for this will be, that he can easily find another family, in which all, or almost all, have lived to great age. A case just reported in the papers, in connection with a death in the town of Hamilton, is exactly in point:—

"In Hamilton, 30th ult., Benjamin Dodge, 74 years 7 months. He was the last of a family of thirteen children, whose father died at the age of 78, the mother at 94. One of the sons died at the age of 40, seven other sons lived to be from 74 to 90 years old, and the five daughters were all past 60 at the time of their death."

In the family of the late Dr. Noah Webster were three sons and two daughters, no one of whom died until nearly 70, while the three sons lived to be 80 and upwards. The long-lived families may therefore be set over against the short-lived, and when the balance is struck, the case will be found as we have stated.

Take another class of facts. Harvard College has been in existence more than 220 years, and Yale College more than 160 years. The average age of young men when they graduate at Yale is between 21 and 22 years, and at Harvard a little less. Now it is no very uncommon circumstance to find that half the members of a class are alive at the end of fifty years from the time of graduation. The history of both colleges will show many instances of this kind. If we mistake not, the class of 1811 at Harvard, of which Hon. Edward Everett was a member, had nearly half its number alive at the time of the class meeting in 1861. And the men thus living must be at an average of more

than 70 years. The general law, however, respecting our college graduates, will show a somewhat lower ratio than this. The living, at the end of fifty years from graduation, will be usually between one third and one half of the class.

The chances for living to old age in New England are good. There are few spots on the face of the earth better, in this respect. We sometimes talk about our bleak west and cruel east winds, as if they carried consumption and death into every household. We speak of our sudden and violent changes from heat to cold, and from cold to heat, as if everybody must go down under such sharp meteorological changes. But the truth is, on the broad scale, and in the long run, there is health rather than disease in these biting winds and decisive changes. The atmosphere is purified, and the system is toned up by the operation of these causes, which seem to us, at the time, "not joyous, but grievous."—*Boston Daily Advertiser*.

A CURIOUS question relating to medical responsibility has just been decided in the Paris Appeal Court. It appears that some time since a man and his son became patients at the private clinic of M. Desmarres, the celebrated Paris oculist, in which some 10,000 cases are annually treated, and after a while the father lost both and the son one of his eyes, in consequence of purulent ophthalmia. The patient proceeded against M. Desmarres before the Correctional Police, claiming 10,000 francs as compensation. This tribunal decided against him, but, in doing so, expressed its regret at finding that the attendance at the clinic devolved upon M. Desmarres' son, a young man twenty-two years of age, and then only a student, though since become a doctor of the Montpellier Faculty. Hereupon the patient instituted a civil action, laying his damages at 60,000 francs, and the Court before which it came on for hearing declared that if, by any negligence of M. Desmarres or his agents, the patient became the subject of contagious disease, or what was a curable and mild affection degenerated into an incurable and dangerous one, reparation could be obtained. The plaintiff declared that he had been exposed to the presence of persons with contagious affections of the eye, and that he had been unskillfully treated, having, in fact, received only the attentions of the young Desmarres, when he had been led to expect those of so experienced an oculist as M. Desmarres, sen. This last plaint was at once put aside, inasmuch as he became aware from the first day that M. Desmarres *filis* managed the Dispensary, and he was at liberty, if not content therewith, to discontinue his attendance. But to enable it to decide whether the other allegation was correct, namely, that a simple disease of the eye was by needless exposure or neglect of treatment converted into a dangerous one, the Court proposed to submit the matter to MM. Nélaton, Béheir and Richet, as experts, who should declare under what diseases these patients labored when they entered M. Desmarres' clinic, together with the nature and causes of the transformation they underwent; how far contagion had been operative, and whether the necessary care and skill had been bestowed. Against this decision M. Desmarres appealed, declaring that, however cheerfully he would submit to the critical appreciation of the eminent men named by the tribunal, what was now demanded at their hands was a

pure impossibility. These patients had lost their sight from purulent ophthalmia, and there was really nothing for experts to determine upon. The Court of Appeal took this view of the case, declaring that a retrospective examination of treatment of a disease, the nature of which there is no proof of, is impossible to be made by the aid of experts and witnesses in a satisfactory manner. And thus this cause, which has been pursuing its harassing course over two years, terminated in favor of the defendant, who we fear will, as is usually the case on such occasions, be yet considerably out of pocket.—*Medical Times and Gaz.*

ANOTHER CURE FOR ITCH.—Dr. LE CŒUR recommends the cure of itch by the pleasant application of aromatic vinegar. He has for years employed this simple economic remedy, with constant success. The vinegar should be rubbed in with a roughish sponge. Four or five frictions generally effect a cure. A warm bath will remove any erythema which may arise. "I recommend my *confrères* to try the remedy."—*Med. News*, from *Brit. Med. Journal*.

Prof. CHAS. A. LEE, of the Medical Department of the Buffalo University, recently delivered a valedictory address to the class previous to his departure for New Orleans, whither he goes for the benefit of his health. As a token of esteem and affection on the part of the pupils, a cane was presented to him.

The class for the present season in the Medical College of Ohio, is stated to be about one hundred and sixty.

VITAL STATISTICS OF BOSTON.
FOR THE WEEK ENDING SATURDAY, DECEMBER 24th, 1864.
DEATHS.

	Males.	Females.	Total.
Deaths during the week	56	38	94
Ave. mortality of corresponding weeks for ten years, 1853—1863,	41.8	39.1	80.9
Average corrected to increased population	00	00	88.61
Death of persons above 90	2	1	3

MARRIED.—At Salem, Dec. 1st, by the Rev. Mr. Willson, Hall Curtis, late Surgeon of the Mass. 2d Reg't of Heavy Artillery, to Miss Alice Dodge Silsbee, daughter of John H. Silsbee, Esq., of Salem.

DIED.—At New London, Conn., 12th inst., Winslow Lewis Perkins, M.D.—Killed, at the Battle of Cedar Creek, Oct. 19th, 1864, Col. Joseph Thoburn, lately commanding the 1st Division in the army of West Virginia. Col. Thoburn, before the rebellion, was a practising physician in Wheeling, Va.

DEATHS IN BOSTON for the week ending Saturday noon, Dec. 24th, 94. Males, 56—Females, 38.—Accident, 3—apoplexy, 2—disease of the brain, 3—inflammation of the brain, 1—bronchitis, 2—burns, 1—cancer, 1—cholera infantum, 1—consumption, 15—convulsions, 3—croup, 2—diarrhœa, 1—diphtheria, 3—dropsy, 1—dropsy of the brain, 3—erysipelas, 1—bilious fever, 1—scarlet fever, 4—typhoid fever, 3—disease of the heart, 1—infantile disease, 1—disease of the kidneys, 2—inflammation of the knee-joint, 1—laryngitis, 1—disease of the liver, 1—congestion of the lungs, 1—inflammation of the lungs, 14—marasmus, 2—cerebro-spinal meningitis, 1—old age, 2—ovarian disease, 1—peritonitis, 1—puerperal disease, 1—rheumatism, 1—smallpox, 4—disease of the stomach, 1—unknown, 6—whooping cough, 1. Under 5 years of age, 36—between 5 and 20 years, 8—between 20 and 40 years, 27—between 40 and 60 years, 11—above 60 years, 12. Born in the United States, 60—Ireland, 21—other places, 13.